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HIV Incidence Surveillance Utilizing Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS)

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HIV Incidence

In 2003, the State of Indiana received federal funding from the Centers for Disease Control and Prevention (CDC) to incorporate HIV Incidence Surveillance into Core HIV/AIDS Surveillance activities. Indiana was one of twenty-four (24) surveillance areas to be funded. The office of Clinical Data and Research (CDR) within the Division of HIV/STD of the Indiana State Department of Health (ISDH) is responsible for this task.

The CDC developed the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) strategy to look at HIV infection in groups of people. STARHS evolved from a need to determine national HIV incidence rates and provide data that will accurately characterize current HIV transmission in the United States. STARHS was also developed to more effectively target HIV prevention efforts. More specifically, STARHS allows for the determination of whether people with newly reported cases of HIV were infected within the past year. STARHS includes an additional test performed on the original diagnostic serum specimens from people with newly reported HIV infections, and does not require an additional blood specimen. Informed consent is required for STARHS. A short questionnaire will also be used to obtain information about testing history patterns of each individual, in order to calculate a statistical weight for the HIV incidence estimation.

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Individual eligibility requirements for STARHS include the following[1]:

- ≥ 18 years of age
- Residing in Indiana
- Able to provide informed consent
- Have a newly documented confirmatory laboratory diagnosis of HIV infection, tested confidentially, not previously reported to HIV/AIDS Reporting System (HARS)

Individuals are ineligible for STARHS if they have a diagnosis of AIDS (persons with AIDS may have low antibody levels that look like new seroconversion), or if the individual is taking antiretroviral HIV medicine (persons on Highly Active Antiretroviral Treatment may have low antibody levels that look like new seroconversion).

Specimens that are identified for STARHS will be prepared and shipped by the Indiana State Public Health Laboratory to a CDC Regional STARHS Laboratory. Testing results will be returned to ISDH and entered in the HIV incidence database for review and analysis by the CDC.

The STARHS test itself uses a dual-test strategy for detecting persons with recent HIV infection. Serum specimens that are reactive on the standard sensitive enzyme-linked immunosorbent assays (EIA) and confirmed HIV positive by Western blot (a.k.a. routine diagnostic HIV test) are retested using a modified, less sensitive EIA. Specimens reactive on the sensitive EIA but non-reactive on the less sensitive EIA are considered to represent likely recent HIV infections[2]. This test allows for the estimation of HIV incidence in the Indiana. Previous testing and reporting has only allowed the ISDH to track prevalence. By utilizing the STARHS method, ISDH has the ability to track HIV incidence rates more accurately.

Some of the potential uses of this information are[1]:

- to differentiate between recent and long-term HIV infections
- to estimate HIV incidence by identifying persons with seroconversion in previous year
- to assist prevention programs in developing prevention strategies to target at-risk individuals
- to monitor and control the spread of HIV.

The STARHS test for HIV incidence is not accurate enough to provide individual results to participants at this time. Scientific data regarding the sensitivity and specificity of STARHS are still limited, and future tests developed for incidence may or may not allow for individual results. All information gathered from this project will allow for population-based estimates of HIV incidence in Indiana, rather than individual estimates.

The ISDH plans to implement STARHS testing among Counseling, Testing and Referral (CTR) sites beginning in spring/summer of 2004. Expansion of the project to private physicians is expected in 2005. Due to the experimental aspect of STARHS and subsequent Investigational New Drug designation by the Food and Drug Administration (FDA), there are specific requirements and restrictions. The use of STARHS requires ISDH to obtain Institutional Review Board approval and allow a 30-day review of Indiana's protocol by the FDA, prior to implementation in Indiana.

Overall, HIV Incidence surveillance and STARHS will improve the ability of HIV surveillance staff to monitor changes in demographics, transmission mode and geographic distribution of new cases in Indiana. Anyone who has questions concerning the HIV Incidence Surveillance study utilizing STARHS, please contact:

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References:

[1] 4th HIV Incidence Consultation, Strategies & Procedures for Implementation, March 25-27, 2003, Atlanta, GA.

[2] Overview of CDC STARHS Research Studies and the FDA IND, 2003.

Over the Counter (OTC) Drug Sales as Part of Syndromic Surveillance

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Monitoring of over-the-counter (OTC) drug sales is commonly used as a component of syndromic surveillance systems across the country and is currently used at the Indiana State Department of Health (ISDH).

Syndromic surveillance is defined as the ongoing, timely recognition, collection, and analysis of information that may detect a bioterrorist activity or other public health emergency. A public health emergency may be a foodborne or waterborne outbreak.
Syndromic surveillance is the key to recognizing a public health emergency or bioterrorism event prior to an actual diagnosis, which may take several days. Syndromic surveillance is conducted by monitoring chief medical complaints (syndromes) from emergency room data, local school absenteeism, increased sales of OTC medications, and a variety of other data sources.

Over-the-Counter (OTC) Drug Surveillance

OTC drug surveillance is the daily monitoring of sales of specific categories of drugs throughout the state of Indiana. These categories include: anti-diarrheal medications, cough/cold remedies, pediatric anti-fever medicine, electrolytes, internal analgesics and thermometers. It has been shown in retrospective evaluation of several disease outbreaks that increased sales of a particular OTC drug provided a signal of an event of illness in multiple patients before the patients entered the health care system and received a diagnosis. If events can be identified earlier, then actions to contain and/or eliminate the spread of these events could be implemented earlier, thereby preventing more people from becoming ill.

OTC drug sales are monitored by accessing the Indiana state data through the National Retail Data Monitoring System (NRDMS) developed by the University of Pittsburgh. NRDMS is a component of the larger syndromic surveillance system called Real On- Time Disease Surveillance (RODS), also developed by the University of Pittsburgh.

National Retail Data Monitor System (NRDMS)

Currently, the ISDH uses the NRMDS database to monitor OTC drug sales daily. The NRMDS began storing data in October 2002. Thirty-three states now use the system, with approximately 268 users. Users represent local health departments, state health departments and the Centers for Disease Control and Prevention (CDC). The goal of the program is to have 70% of retailers in each state (under contract) report data. At present, Indiana has around 40%.

There are two main features of RODS that allow reporting and interpretation of data, Mapplot and Epiplot. Mapplot signals increased OTC sales by indicating zip code areas with increased sales in red. Statistical analysis performed in Pittsburgh of past and present data allows the display of sales data results that are above the baseline for a particular zip code. Epiplot allows the viewer to look at the data from past and present trends with the data going back to February 2003.

The ISDH now stores the OTC data from Pittsburgh in an Oracle database. This will provide more storage of data, more in-depth analysis, and integration of the OTC data with other data.

It is important to note that OTC drug monitoring is just one of the multiple data sources needed in syndromic surveillance. OTC monitoring cannot function optimally as a "stand alone" system for detecting events. It should be integrated with data from hospital emergency departments, school absenteeism, poison control center call-ins, laboratory tests, mortality statistics, managed care patient visits, and other sources. Syndromic surveillance requires "real time" continuous vigilant assessment of multiple sources of data to determine immediate recognition of a potential outbreak and to implement rapid control measures.

The ISDH will continue to improve the OTC monitoring system by:

- Recruiting more drug stores in Indiana to participate in the program
- Increasing in-depth analysis of the data
- Integrating the data with other data sources
- Developing alert and response systems

For questions or more information about this system, contact Mike Wilkinson, ISDH, at (317) 234-2827 or mwilkins@isdh.state.in.us. You may also contact Linda Jones, ISDH, at (317) 234-2807 or ljones@isdh.state.in.us.

Contributions to this article were made by Linda Jones, RN, Syndromic Surveillance Epidemiologist.

Training Room

Public Health Nurses' Training Returns!

Mark your calendars! The ISDH is offering public health nurse training on Friday, April 23, from 9:00 a.m. to 4:00 p.m. at the Hampton Inn in downtown Indianapolis. Training will be held in the Maryland Room of the hotel. This is the same training offered last November, so if you attended that training, this will have mostly the same information. Agenda items include:

- Communicable Disease Rule
- Case Investigation
- Hepatitis C Reporting
- Vaccine Preventable Diseases
- Respiratory Disease Update
- Lab Samples and Testing
- Syndromic Surveillance
- Confidentiality
- Information Release to Media
- Cultural Competancy
- Methicillin Resistant *Staphylococcus aureus*
- Hepatitis B

There is no registration fee for this training. ISDH will reimburse participants for mileage and lodging according to the following:

1. Keep a copy of all receipts and record your mileage.
2. Submit a copy of all receipts to your county and either fax or mail a copy of receipts and your voucher to ISDH.
3. ISDH will reimburse the county and the county will reimburse you.
4. ISDH will not reimburse for tips given to baggage carriers.
5. Please include the departure time from your work station and arrival time back to your work station or home so that ISDH can reimburse for meals.
6. Lodging must show a zero balance.
7. You must travel 50 miles or more from your official station for ISDH to reimburse lodging costs.
8. Follow all state rules and regulations for travel.

All participants will receive a copy of the reimbursement guidelines and a travel voucher at the conference.

Please contact Pam Pontones at 317-233-7009 or, preferably, at ppontones@isdh.state.in.us by Monday, April 19 if you would like to attend the conference.

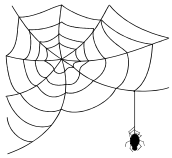
New Foodborne Illness Investigation Manual and Training Coming Soon!

The second edition of the Foodborne Illness Investigation Reference Manual will be available this spring for local health departments. In addition to an extensively revised text, the manual will also include updated contact information, charts, forms, and references. Two copies of the manual will be sent to each local health department, with additional copies available by request while supplies last.

Case investigation forms used by local health departments to investigate cases of reportable enteric diseases have also been updated and will be available on the ISDH website (www.in.gov/isdh) for easier access. "Quick Facts" fliers available on the ISDH website on various enteric diseases will also be updated or added, and will also be available in Spanish.

Representatives from the ISDH Epidemiology Resource Center and Food Protection Program will conduct foodborne illness investigation training after the manuals have been distributed. The training will include presentations on disease agents, surveillance, foodborne complaints, epidemiological investigation, and environmental investigation. The training will conclude with a tabletop exercise based on an actual outbreak. There will be no registration fee for this one-day training. Training will be offered at the following sites: Michigan City, Fort Wayne, Indianapolis, Jasper, and Scottsburg. Information regarding registration, locations, dates, and times will be provided at a later date.

Watch Groupwise and future issues of the Indiana Epidemiology Newsletter for more details!



Wonderful Wide Web Sites

ISDH Data Reports Available

The ISDH Epidemiology Resource Center has the following data reports and the Indiana Epidemiology Newsletter available on the ISDH Web Page:

http://www.statehealth.in.gov/dataandstats/epidem/epinews_index.htm

Indiana Cancer Incidence Report (1990, 95,96, 97)

Indiana Cancer Mortality Report (1990-94, 1992-96)

Indiana Health Behavior Risk Factors (1995-96, 97, 98, 99, 2000, 2001)

Indiana Health Behavior Rish Factors (BRFSS) Newsletter

Indiana Hospital Consumer Guide (1996)

Public, Hospital Discharge Data (1999, 2000, 2001)

Indiana Maternal & Child Health Outcomes & Performance Measures (1988-97, 1989-98, 1990-99, 1991-2000)

Indiana Marriage Report (1995, 97, 98, 99, 2000)

Indiana Mortality Report (1999, 2000)

Indiana Natality Report (1995, 96, 97, 98, 99, 2000, Provisional 2001)

Indiana Induced Termination of Pregnancy Report (1998, 99, 2000)

Indiana Infectious Diseases Report (2000)

Former Indiana Report of Diseases of Public Health Interest (1996, 97, 98, 99)

HIV Disease Summary

Information as of January 31, 2004 (based on 2000 population of 6,080,485)

HIV - without AIDS to date:

348	New HIV cases from February 2003 thru January 2004	12-month incidence	cases/100,000
3779	Total HIV-positive, alive and without AIDS on January 31, 2004	Point prevalence	cases/100,000

AIDS cases to date:

466	New AIDS cases from February 2003 thru January 2004	12-month incidence	cases/100,000
3642	Total AIDS cases, alive on January 31, 2004	Point prevalence	cases/100,000
7466	Total AIDS cases, cumulative (alive and dead)		

REPORTED CASES of selected notifiable diseases

Disease	Cases Reported in January	
	MMWR Weeks 1-4	MMWR *Weeks 1-4*
	2003	2004
Campylobacteriosis	12	7
Chlamydia	1,373	1,114
E. coli O157:H7	0	3
Hepatitis A	0	4
Hepatitis B	0	0
Gonorrhea	537	454
Legionellosis	0	0
Lyme Disease	1	0
Meningococcal, invasive	3	2
Pertussis	0	0
Rocky Mountain Spotted Fever	0	0
Salmonellosis	7	12
Shigellosis	4	2
Invasive Drug Resistant *S. pneumoniae* (DRSP)	0	8
Primary and Secondary Syphilis	2	6
Tuberculosis	10	13
Animal Rabies	0	0

For information on reporting of communicable diseases in Indiana, call the ISDH Communicable Disease Division at (317) 233-7665

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The *Indiana Epidemiology Newsletter* is published by the Indiana State Department of Health to provide epidemiologic information to Indiana health professionals and to the public health community.